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**IS : 8255 - 1976**

*Indian Standard*  
**SPECIFICATION FOR  
FLEXIBLE LOAD BEARING POLYURETHANE  
FOAM COMPONENTS FOR VEHICLES**

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**BUREAU OF INDIAN STANDARDS**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

**Gr 2**

*January 1977*

# Indian Standard

## SPECIFICATION FOR

### FLEXIBLE LOAD BEARING POLYURETHANE

### FOAM COMPONENTS FOR VEHICLES

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*Indian Standard*  
**SPECIFICATION FOR  
FLEXIBLE LOAD BEARING POLYURETHANE  
FOAM COMPONENTS FOR VEHICLES**

**0. FOREWORD**

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 29 July 1976 after the draft finalized by the Plastics Sectional Committee had been approved by the Chemical Division Council.

**0.2** This standard contains clauses **4.2**, **4.3**, **4.7** and **4.8** which call for an agreement between the purchaser and the supplier.

**0.3** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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**1. SCOPE**

**1.1** This standard prescribes the requirements and the methods of sampling and test for flexible load bearing polyurethane foam components ( polyether type ) for vehicles. The foam is manufactured in blocks, sheets, strips and in moulded and fabricated shapes.

**2. TERMINOLOGY**

**2.1** For the purpose of this standard, definition given in **2** of IS : 2828 - 1964† and IS : 7888 - 1976‡ shall apply.

**3. TYPES AND GRADES**

**3.1 Types** — Flexible polyurethane foam shall be of the following two types:

- Type 1* — Profiled and cavitated components; and
- Type 2* — Rectangular sections of any thickness.

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\*Rules for rounding off numerical values (*revised*).

†Glossary of terms used in plastics industry.

‡Methods of test for flexible polyurethane foam.

**3.2 Grades** — Each type shall be further graded on basis of indentation hardness number as follows:

GRADE		HARDNESS NUMBER		
A		7	to	9
B	Over	9	Up to	11
C	"	11	"	13
D	"	13	"	16
E	"	16	"	19
F	"	19	"	23
G	"	23	"	27
H	"	27	"	33
J	"	33	"	40

NOTE — The above grades are based on indentation hardness number at 50 percent deflection on a sample of 75 mm thickness and using a indentor of 200 mm diameter.

#### 4. REQUIREMENTS

**4.1 Description** — The material shall consists of a net-work of uniform cells which are essentially open and interconnecting. The structure shall be homogeneous. The material shall be free from any strong odour.

**4.2 Colour** — The colour of the material shall be as agreed to between the purchaser and the supplier.

**4.3 Dimensions** — The dimensions of the material shall be as specified by the purchaser subject to the tolerances given in Tables 1 and 2 unless otherwise agreed to between the purchaser and the supplier.

**TABLE 1 TOLERANCE ON LENGTH AND WIDTH**

SL No.	LENGTH AND WIDTH (2)	TOLERANCE	
		mm	mm
i)	Up to 300		+ 6
ii)	301 to 600		+ 12
iii)	601 „ 900		+ 19
iv)	901 „ 1 200		+ 25
v)	1 201 „ 1 800		+ 30
vi)	1 801 „ 2 200		+ 40

NOTE — No ( - ) minus tolerance is permitted.

**TABLE 2 TOLERANCE ON THICKNESS**  
( Clause 4.3 )

<b>Sl No.</b>	<b>THICKNESS</b>		<b>TOLERANCE</b>
	<b>(1)</b>	<b>(2)</b>	
	mm	mm	
i)	Up to 25		+ 3
ii)	26 ,, 150		+ 5
iii)	Over 150		+ 6

NOTE — No ( - ) minus tolerance is permitted.

**4.4 Hardness** — The indentation hardness number at 50 percent deflection shall be within the range prescribed against each grade in **3.2** when determined by the method described in **6.3.3** of IS : 7888 - 1976\*.

**4.5** The material shall also comply with the requirements given in Table 3.

**TABLE 3 REQUIREMENTS FOR FLEXIBLE LOAD BEARING POLYURETHANE FOAM COMPONENTS FOR VEHICLES**

<b>Sl No.</b>	<b>CHARACTERISTIC</b>	<b>REQUIREMENT</b>	<b>METHODS OF TEST, REF TO CL NO. IN IS : 7888-1976*</b>	
			<b>(1)</b>	<b>(2)</b>
i)	Elongation at break, percent, <i>Min</i>	150		5
ii)	Tensile strength, kgf/cm <sup>2</sup> , <i>Min</i>	1†		5
iii)	Load quotient, <i>Min</i>	1.9		6

\*Methods of test for flexible polyurethane foam.

†Equivalent to 98 kN/m<sup>2</sup>.

**4.6 Heat Ageing Test** — When the material is subjected to heat ageing test as prescribed in **10** of IS : 7888 - 1976\* the tensile strength after ageing when tested in accordance with **5** of IS : 7888 - 1976\* shall be not less than 70 percent of initial strength.

**4.7 Component Mass** — Component mass of the material shall be as agreed to between the supplier and the purchaser with a tolerance of  $\pm 10$  percent in mass.

**4.8 Flammability** — When so specified by the purchaser the material shall have the degree of non-flammability agreed to between the purchaser and the supplier. A recommended method of test is given in **11** of IS : 7888 - 1976\*.

\*Methods of test for flexible polyurethane foam.

**4.9 Compression Set** — The compression set of the material at 90 percent deflection shall be 10 *Max* when tested as prescribed in 8 of IS : 7888 - 1976\*.

**4.10 Fatigue Test** — When the sample is subjected to the fatigue test as described in 7 of IS : 7888 - 1976\* the loss in 25 percent indentation hardness characteristic shall not be more than 30 percent of the initial value and the reduction in thickness shall not be more than 10 percent of the initial value.

## 5. PACKING AND MARKING

**5.1 Packing** — The material shall be packed as agreed to between the purchaser and the supplier.

**5.2 Marking** — Each package shall be indelibly marked with the name of the manufacturer or trade-mark, if any; type; grade; dimensions and date of manufacture and batch number.

**5.2.1** The packages may also be marked with the Standard Mark.

**5.2.2** The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

## 6. SAMPLING

**6.1** The samples shall be drawn as prescribed in 12 of IS : 7888 - 1976\*.

## 7. TESTS

**7.1** Tests shall be conducted as prescribed in IS : 7888 - 1976\*. Reference to relevant clauses of IS : 7888 - 1976\* is given in **4.4, 4.6, 4.8, 4.9, 4.10** and col 4 of Table 3.

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\*Methods of test for flexible polyurethane foam.

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